

ASSIGNMENT 2

Textbook Assignment: "Quality Surveillance (continued)," and "JP-5 Afloat Below Deck Systems and Operations," chapters 3 and 4, pages 3-9 through 4-13.

- 2-1. To be acceptable for delivery to aircraft, jet fuels must not contain more than how much free water?
1. 5 ppm
 2. 10 ppm
 3. 2 mg/l
 4. 5 mg/l
- 2-2. To be acceptable for delivery to aircraft, jet fuels must not contain more than how much particulate contamination?
1. 5 ppm
 2. 10 ppm
 3. 2 mg/l
 4. 5 mg/l
- 2-3. What visual standards must jet fuel meet to be acceptable for delivery to aircraft?
1. Clean and bright
 2. Clear and free of water
 3. Clear and sparkling
 4. Clean and colorless
- 2-4. Which of the following is NOT a form of water contamination found in fuels?
1. Dissolved
 2. Hanging
 3. Entrained
 4. Free
- 2-5. Which of the following is a definition of entrained water?
1. Dissolved water that has not settled to the bottom
 2. Free water that has not settled to the bottom
 3. Undissolved water
 4. A mixture of fresh and salt water
- 2-6. What are the most common types of sediment found in fuel?
1. Paint and rubber
 2. Metal and rust
 3. Rust and sand
 4. Sand and metal
- 2-7. The division between course sediment and fine sediment is made at
1. 1,000 microns
 2. 100 microns
 3. 10 microns
 4. 1 micron
- 2-8. Although invisible to the naked eye when separated, microscopic particles of foreign matter grouped together in a fuel sample may appear as a
1. speck or spot
 2. slight haze
 3. residue on the container
 4. separate layer
- 2-9. Which of the following is a description of microbiological growth in fuel?
1. Dark colored, fibrous, and stringy
 2. Dark colored, fibrous, and ball-shaped
 3. Straw colored, mayonnaise-like, and stringy
 4. Straw colored, mayonnaise-like, and ball-shaped
- 2-10. The development and growth of microorganisms in jet fuel is primarily caused by what contaminant?
1. Sand
 2. Free water
 3. Rust
 4. Dissolved water

- 2-11. The most common emulsion is the water-in-fuel emulsion. What does it look like?
1. A light-to-heavy cloud
 2. A heavy-to-light cloud
 3. A dark, reddish haze
 4. A brown haze
- 2-12. A surfactant in fuel causes the fuel and any water that contacts it to mix easier, and also makes it harder to separate.
1. True
 2. False
- 2-13. Surfactants must be present for microbiological growth to occur.
1. True
 2. False
- 2-14. A surfactant problem can usually be detected by which of the following observations ?
1. Dark, red-brown, or black water in filter/separator sump drains, refueler sump drains, or pipeline low-point drains
 2. Storage tanks not yielding a clear, bright fuel after the prescribed settling time
 3. Triggering of fuel monitors in delivery systems, if installed
 4. All of the above
- 2-15. What mechanical method, if any, is used to separate commingled fuels?
1. Settling
 2. Filtering
 3. Centrifuging
 4. None
- 2-16. Commingled fuels are usually caused by
1. leaking valves
 2. leaking tanks
 3. carelessness during handling
 4. intentional mixing

- A. All-level**
- B. Line**
- C. Representative**
- D. Composite**

FIGURE 2-A

IN ANSWERING QUESTIONS 2-17 THROUGH 2-20, SELECT FROM FIGURE 2-A THE TYPE OF FUEL SAMPLE ASSOCIATED WITH EACH STATEMENT.

- 2-17. Taken at or near the discharge point of a hose immediately before and during the first few minutes of pumping.
1. A
 2. B
 3. C
 4. D
- 2-18. Consists of one container from a large stock of package fuel of the same grade and age.
1. A
 2. B
 3. C
 4. D
- 2-19. Contains a blend of individual samples from several tanks that contain the same type of product being sampled.
1. A
 2. B
 3. C
 4. D
- 2-20. Represents all fuel between the drawoff level and the top surface level of a tank.
1. A
 2. B
 3. C
 4. D

2-21. Fuel sample containers used for sediment and water tests must be made of what construction?

1. Glass with a metal top
2. A nonmetallic material with glass linings
3. Glass with a nonmetallic top
4. Metal with glass linings

2-22. Which of the following is NOT a requirement for the identification of a sample?

1. The location and name of the activity submitting the sample
2. The location of the point where the sample was taken
3. The sample classification
4. Test results

2-23. A representative sampling of a large stock of packaged fuel revealed contamination sufficient to make the entire supply suspect. Further samples are taken, labeled, and sent to be tested. What were the first and subsequent samples taken?

1. A composite sample, and the others were routine samples
2. A routine sample, and the others were special samples
3. A routine sample, and the others were composite samples
4. A special sample, and the others were routine samples

2-24. When visually inspecting a fuel sample, What should be the first thing you check?

1. The color of the fuel sample
2. The aroma of the fuel sample
3. The presence of water
4. The presence of sediment

2-25. How should you visually check a fuel sample for sediment?

1. Shake it vigorously to break loose any previously undetected emulsion
2. Whirl it rapidly so the fine particles will be thrown to the outside of the sample container
3. Place the sample container on a level surface and allow the sediment to collect on the sides of the container
4. Swirl it to form a vortex that will draw the sediment to the center-bottom of the container

2-26. If contamination is found in a fuel sample, another sample should be drawn in a new, clean container and the visual inspection repeated.

1. True
2. False

2-27. The contaminated fuel detector (CFD/CCFD) employs which of the following principles?

1. Trapped solid contaminants increase the amount of light passing through the millipore filters
2. Trapped solid contaminants decrease the amount of light passing through the millipore filters
3. Solid contaminants increase the weight of the top millipore filter more than the color variation increases the weight of the bottom one
4. The weight of the solid contaminants trapped between the millipore filters is equal to the amount of solid contaminants in the sample

- 2-28. Why should two millipore filters be used when a sediment test is conducted?
1. To increase the speed of the filtration
 2. In case one is ripped or torn during the filtration cycle
 3. To allow the sediment to be trapped between the two
 4. To eliminate any fuel color effect and increase accuracy
- 2-29. What size are the pores of the millipore filter?
1. .60 micron
 2. .65 micron
 3. .70 micron
 4. .75 micron
- 2-30. When preparing to conduct a sediment test with the CFD/CCFD, you should fill the polyethylene bottle with how much fuel?
1. 500 ml
 2. 600 ml
 3. 700 ml
 4. 800 ml
- 2-31. The light system of the CFD/CCFD should be warmed up for at least how many minutes before use?
1. 1 to 2
 2. 2 to 3
 3. 3 to 4
 4. 4 to 5
- 2-32. The light intensity should be adjusted to what reading prior to measuring the millipore filter?
1. 6.0 milliamps
 2. 0.6 milliamps
 3. 0.06 milliamps
 4. 0.006 milliamps
- 2-33. When measuring the millipore filters, the reading is taken in
1. tenths
 2. hundredths
 3. thousandths
 4. ten thousandths
- 2-34. The light intensity on the CFD/CCFD is adjusted by use of a
1. thermostat
 2. photovoltaic cell
 3. hydrostat
 4. rheostat
- 2-35. If adjustment of the light bulb holder is required, what position should the filament on the light bulb be in after the adjustment is made?
1. Up
 2. Down
 3. Horizontal
 4. Vertical
- 2-36. Fuel with a known contamination measurement must be run through the Wratten filters when calibrating the CFD/CCFD.
1. True
 2. False
- 2-37. In accordance with PMS, at least how often must CFD/CCFD be calibrated?
1. Monthly
 2. Quarterly
 3. Whenever a part is replaced
 4. Both 2 and 3 above
- 2-38. What is the main function of the AEL Mk I and AEL Mk II?
1. To measure free water
 2. To measure dissolved water
 3. To detect salt water
 4. To detect fresh water

2-39. A sample tested indicates that more than 20 ppm water is present. What additional test must you perform?

1. Test a second standard sample and double the results
2. Test another standard sample in the same manner to verify the accuracy of the first sample, then log the results
3. Test a second sample one-half the size of the standard sample and double the results
4. Test another standard sample and divide the results by 2

2-40. At least how often must the "standards" card in the free water detector be replaced in accordance with PMS?

1. Monthly
2. Quarterly
3. Semiannually
4. Annually

2-41. What range thermometer should you use to do a flash point test on JP-5?

1. 10°F to 230°F
2. 20°F to 230°F
3. 10°F to 700°F
4. 100°F to 200°F

2-42. When conducting a flash point test and the fuel to be tested has been heated within 30° to 50°F of the expected flash point, at what multiples should you begin applying the test flame?

1. 2°F
2. 3°F
3. 4°F
4. 10°F

2-43. What does FSII mean?

1. Fuel system initial installation
2. Fuel system internal instruments
3. Fuel system icing inhibitor
4. Fuel system internal inhibitors

2-44. What type of light source, if any, should you use when operating the refractometer?

1. Fluorescent or incandescent bulb
2. Natural sunlight
3. Ultra-violet
4. None

2-45. When the FSII test is conducted, how much fuel is taken from the graduated cylinder and poured into the separator funnel?

1. 2 ml
2. 80 ml
3. 120 ml
4. 160 ml

2-46. After adding 2 ml of water to the fuel for a FSII test, how long must the sample then be shaken?

1. 1 min
2. 2 min
3. 3 min
4. 4 min

2-47. What is the minimum use level for USN and USMC aircraft that require FSII?

1. .01%
2. .02%
3. .03%
4. .04%

2-48. Which of the following USN/USMC aircraft currently do NOT require the use of FSII?

1. S-3
2. US-3
3. SH-60
4. H-3

2-49. What instrument is used to measure the specific gravity of petroleum products?

1. Handimeter
2. Beaker
3. Gravity gage
4. Hydrometer

- 2-50. Which of the following is NOT considered a major pumping system?
1. Fill and transfer system
 2. Stripping system
 3. Jet test system
 4. Service system
- 2-51. What is the primary use of a JP-5 storage tank?
1. Bulk stowage of JP-5
 2. Amidship emergency tanks
 3. Fuel for aircraft service
 4. Fuel for only jet test use
- 2-52. What is the primary use of a JP-5 service tank?
1. To store bulk storage of JP-5
 2. To store fuel for aircraft servicing
 3. To store fuel from the reclaim system
 4. To receive fuel from flushing operations
- 2-53. What section of piping connects the filling connection on the main deck with the transfer main on the seventh deck?
1. Riser
 2. Downcomer
 3. Branch header
 4. Suction header
- 2-54. What is the primary purpose of the transfer main?
1. To interconnect the forward and the aft storage tanks
 2. To interconnect the forward and aft service tanks
 3. To connect the designated contaminated tanks with the eductor
 4. To interconnect the storage tanks to the service tanks
- 2-55. What valves are used to isolate the transfer system during secured conditions and to control the flow of JP-5 during various transfer and filling operations?
1. Downcomer valves
 2. Bulkhead cutout valves
 3. Service pump suction valves
 4. Riser cutout valves
- 2-56. Transfer main branch headers connect the transfer main to
1. storage tank manifolds
 2. the opposite transfer main
 3. stripping pump suction headers
 4. service tank manifolds
- 2-57. What devices are arranged in the transfer pump's discharge header to enable both purifiers to operate simultaneously using any two of the three transfer pumps?
1. Two one-way check valves
 2. Two transfer pump bypass lines
 3. Two cutout valves
 4. T-lines
- 2-58. Valve arrangement in the transfer pump's discharge header is designed to allow two different transfer operations to be performed at the same time.
1. True
 2. False
- 2-59. The common suction and discharge headers of the transfer pumps are interconnected with the suction and discharge headers of the service pumps. What is the purpose of these two systems being interconnected?
1. To pump fuel directly from the storage tanks to the flight deck for servicing aircraft
 2. To use the higher capacity service pumps to pump fuel through the reclamation system quicker
 3. To bypass the service filters
 4. To use the service pumps for off-loading fuel

- 2-60. What system provides the capability to reclaim JP-5 received from hose flushings, tank stripping operations, and the initial flow from a FAS?
1. Stripping system
 2. Service system
 3. Recirculation system
 4. Reclamation system
- 2-61. What is/are the primary use(s) of the motor-driven stripping system?
1. Remove settled water and solids from tanks
 2. Completely empty tanks
 3. Remove wash water from tanks
 4. All of the above
- 2-62. What is the required height from the bottom of a tank for the motor-driven stripping tailpipe?
1. 1 in.
 2. 1 1/2 in.
 3. 2 in.
 4. 2 1/2 in.
- 2-63. What is the required height from the bottom of a service tank for the hand-operated stripping tailpipe?
1. 1/4 in.
 2. 1/2 in.
 3. 3/4 in.
 4. 7/8 in.
- 2-64. What system is designed to deliver clean, clear, and bright JP-5 from the service tanks to aircraft?
1. Transfer system
 2. Jet test system
 3. Auxiliary system
 4. Service system
- 2-65. The service system is typically designed to be isolated into how many parts?
1. One
 2. Two
 3. Three
 4. Four
- 2-66. The service tank suction tailpipes should be at least how many inches above the tank bottoms?
1. 24
 2. 18
 3. 12
 4. 10
- 2-67. The service tank recirculating line terminates how far and in what position from the bottom of the tank?
1. 18 inches vertically
 2. 18 inches horizontally
 3. 24 inches vertically
 4. 24 inches horizontally
- 2-68. The orifice in the service pump recirculation line allows what percent of the pump's rated capacity to recirculate back into the tank from which suction is being taken?
1. 5%
 2. 10%
 3. 12%
 4. 15%
- 2-69. What is the purpose of recirculating fuel through the service pumps?
1. To lubricate the pump
 2. To maintain a positive suction
 3. To ensure the pump does not exceed its rated capacity
 4. To keep the pump cool when no fuel is being drawn topside
- 2-70. From where does the jet test system receive its fuel?
1. The service pump suction header
 2. The transfer main
 3. The service filter discharge line
 4. The aft, port quadrant distribution riser

2-71. What system provides JP-5 to small boat filling stations?

1. Jet test system
2. Stripping system
3. Auxiliary system
4. Filter drain system